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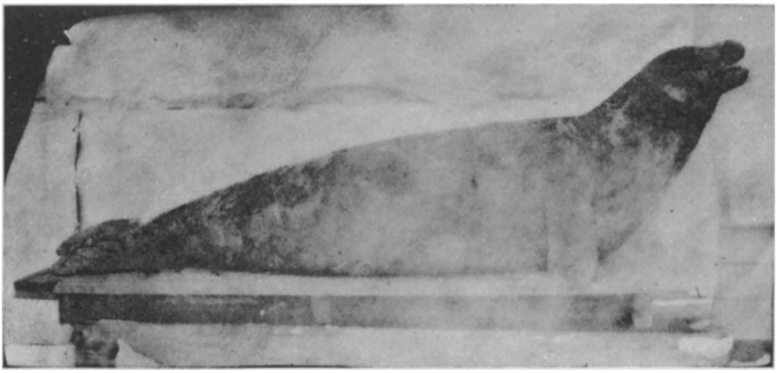
PLATE XII.



MONACHUS TROPICALIS.

NOTES ON THE LIFE-HISTORY OF MONACHUS TROPICALIS, THE WEST INDIAN SEAL.

BY HENRY L. WARD.

WHEN in 1494 Columbus was cruising among the West Indies with his little caravels, searching for the ever-delusive route to the kingdoms of the Grand Khan, towards the latter part of August his vessels became separated, and in order to spy out if possible the missing ones he came to anchor near a tall rock lying south of the centre of Hayti and called by him Alto Velo.

Sailors were sent ashore with orders to climb to the top and look out for the other caravels. Unsuccessful in their search for them, on returning to the ship "they killed eight sea-wolves (seals) which were sleeping on the sands."

This West Indian seal was consequently the first observed American mammal larger than the Coypu or Cane-Rat that probably had been seen at Cuba.

The next notice that we have of it was written by Dampier in 1675; then follow Hill's account in 1843, Gray's in 1849, 1850, and 1874, and Gosse's in 1851. This comprises all accounts of which I am aware that, based upon specimens in hand, appeared previous to 1884. Dampier and Hill and Wilkie (Gosse's account) in 1846 have given us the only records of observations concerning the life of this seal. Since then all trace of it has been lost, two small skins in Mexico and a single young one in this country comprising all the specimens known to be in existence up to the time that we obtained others.

Last fall I had consummated a plan to try and find this seal, when, hearing from Professor F. Ferrari Perez, of the Mexican Geographical and Exploring Survey, that he had the same object in view, we decided to join forces. Accordingly, in November last we met by mutual appointment at the city of Campeche. The Triangles, or rather the East Triangle, was the point at which we had decided to make our first search for Monachus. This is in lat. 20° 55′ N., long. 92° 12′ W., or one hundred and eight nautical miles in a northwesterly direction from the nearest point of the Yucatan peninsula. Distant two or three hundred yards in a northeasterly direction from the east island lies what I shall designate as the North Triangle. The west island, distant seven and a half miles, was unvisited by us.

A brief description of the east and north islands, the ones at which we obtained seals, will be of interest as depicting one of the hitherto unknown habitat of this animal. They are of coral formation and surrounded by dangerous reefs that here and there have reached the surface, from twenty-seven to twenty-eight fathoms of water surrounding them. Meandrina, Millepora, and Madrepora were the three genera noticed, the former, by far the more common, forming the bulk of the islands and outlying reefs.

The East Triangle is an irregular oval in form, about half a mile in length by perhaps one hundred and fifty yards in greatest width. The northern part of the island is quite level, raised scarcely a yard above high tide, and consists of gleaming white coral sand interspersed with water-worn, rounded blocks of the same material.

These sandy portions of the islands were the principal "hauling-up" places of the seals. The southern part of the island is almost exclusively composed of these coral stones, strangely heaped up into pinnacles and ridges, about twenty feet above sea-level, between which lie gullies and circular pits six or seven feet in depth.

Beginning a little distance from the smaller end of this island, so as to include between itself and the land a narrow lagoon, runs a reef which, for its entire length awash, loses itself in the sea before it reaches the Northern Triangle. This island, of approximately half the area of the other, is quite similar to it in form and character. No trees or bushes grow upon either, three species of plants alone forming the observed vegetation. Two of these are trailing plants. The other, one of the Leguminoseæ, growing to a height of about two feet, formed sheltered nooks between the diverging stems, positions that were used as nests by the Booby (*Sula cyanops*) and the Man-o'-War-Bird (*Fregata aquila*). *Sterna maxima* was the only other bird noticed. Alacrans (scorpions) a black kind, abounded in the sandy places, causing one to be somewhat careful where he sat or what he picked off the ground. The house-fly completes the list of the air-breathing observed fauna.

Upon arriving at the islands we anticipated a stay long enough to enable us to do all the work both upon seals and other objects that we might desire; but on the second day the barometer indicated the near approach of a "Norther," the severe winter wind of that part of the coast, and upon the third day we had hurriedly to break camp, even leaving some of our specimens, get aboard of our little schooner and scud back to harbor amid the breaking waves and chilling blasts of a winter gale. My observations therefore cover a very small period of time,—*i.e.*, from the 1st to the 4th of December. This proved to be the time of parturition among the seals, for upon making a landing on the east island we killed a female with a fœtus nearly ready for birth, and in a little internal pond of salt water found a female lying on her side suckling her young. She paid no more attention to our near approach than would the familiar denizens of the barn-yard under similar circumstances. Subsequently four other females were killed containing nearly ripe fœtuses. In one case, where the fœtus was removed immediately after killing the mother, it kicked and squirmed for one or two minutes in such a lively manner as to indicate that delivery would have occurred in a few moments had the female not been molested. Following the usual order with seals, there is but one offspring at a birth. The female can have little difficulty in nursing this, as in any but a perfectly prone position one or more of her four teats will always be within reach of the young.

The fœtus is quite large, one measuring 85 c.m. in length from tip of nose to end of tail.[1] The hair is long, very soft and woolly, and of a glossy black color. Parturition probably occurs in shallow water, as the three females noted nearest this period were lying stranded on the beach, half in and half out of water.

The young seal previously mentioned was of a uniform black color, including its mystacial bristles, with large, dark brown, lustrous eyes that looked inquiringly at one: more intelligent in appearance than were the adults. This youngster we took with us on leaving the islands, and had it in captivity for a week or more at Campeche, where it eventually died, probably from lack of proper nourishment.

Its teeth were uncut, and so it had no thoughts of offering resistance when handled. It was totally devoid of fear; but most too young to make any demonstrations of friendship. Its time on shipboard was spent in aimlessly roaming to and fro, serenely regardless of such trivial obstructions as people standing in its way; uttering every few moments its cry, a long drawn out, guttural "ah," with a series of vocal hitches during its enunciation. At Campeche this little seal seemed to enjoy its daily bath in the sea, plunging its head under water and blowing and snorting as if in great glee, yet ever and anon uttering its plaintive cry, as if in momentary mourning for its lost parent.

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[1] More measurements and descriptions of this seal will be found in a bulletin of the American Museum of Natural History, now in course of preparation by Professor J. A. Allen.

Two females containing fœtuses measured respectively 2 m. 16 c.m. and 1 m. 99 c.m. from end of nose to end of tail. Two adult males measure from a skeleton and stuffed specimen respectively 2 m. 29 c.m. and 2 m. 16 c.m. between the same points. These are about the maximum sizes, of the two sexes, noticed. Such a seal looks large and might easily give rise to the "about ten feet in length," and even greater measurements, that have been reported of this species.

From the black pelage of the extremely young to that of the adult there is an intermediate stage of yellowish gray on the dorsal surface, shading to almost a perfect ochre on the ventral portions. Adults are grayish brown or grisled on the back, a result of the Vandyke-brown hairs being tipped with light horn-color, the lower surface ochreous-yellow to yellowish white. Females seem to have much less of the yellow or white on the ventral surface.

The variations in coloration in individuals of approximately the same age seemed to be comparatively slight. In adults the mystacial bristles vary from dark horn-color for the basal half and light horn or whitish for the remainder, to a clear light color for their entire length. They taper gradually to a remarkably fine point, for a half-inch, in some specimens, being scarcely heavier than a coarse human hair.

The head is very large and prominent, having an extremely "brainy" appearance even for a seal: quite belying its mental capacity, which seems to be very slight. This prominence is not so much on account of the size of the skull as because of the immense amount of muscle and flesh intervening between it and the skin. The whole body of the animal is very chunky. The bones are all deeply embedded in the flesh, over which, particularly on the belly, lies a thick coating of fat. The eye of the adult is an index to its mental capacity, for so dull is it that in the first specimen observed I was much inclined to think that this organ was diseased. The pupil is medium-sized, round, and well defined, the iris is light reddish brown in color, and with but little of the sclerotic coat showing. Over the cornea there appears a deadening film, giving it much the same appearance as a glass eye or marble that has been so much handled as to lose its polish. May not this lustreless eye arise from the strong reflection of a tropical sun upon the coral sands? Most seals have a peculiarly soft, intelligent eye.

When lying with the head close to the ground, either in life or immediately after death, the shoulders appear more prominent than in any other seal with which we are familiar.

The whole character of this seal is that of tropical inactivity, exemplified by the peculiar circumstance that several of those collected had such a growth of minute algæ upon their backs and flippers, more especially the hinder ones, as to appear quite green. At no time does this seal raise its head as much above the line of its back as does the harbor seal: the flexibility of its cervical vertebræ appearing to be quite restricted. Upon first approaching them they appeared to have no dread whatever of the human presence, lazily looking at us, perhaps uneasily shifting their position, and then dozing off in restless sleep. Upon advancing to within three or four feet they would somewhat rouse themselves, bark in a hoarse, gurgling, death-rattle tone, and uneasily hitch themselves along a few paces. At first the seals offered very little resistance, and only upon the second day of our stay, when they had become somewhat accustomed to our presence, and when we made an onslaught upon a group of several, did they show fight at all. On this occasion their numbers and their being huddled together seemed to give them courage, as well as making our attempts to kill them with clubs and daggers (we had early decided not to use firearms, because of the danger of frightening them away from such small islands) dangerous and more or less abortive. Not infrequently would they make savage rushes for a yard or two at some one of our attacking party, and failing to reap revenge upon us would fall upon their dead or dying fellows, biting and shaking them in impotent rage; or occasionally two would engage each other in savage conflict for a moment or two, the heavy gnashing of their teeth as their powerful jaws closed giving us a lively idea of how unpleasant it would be to fall within their reach. Nevertheless, the whole aspect of the animals was one of indecision. Instead of stampeding when molested, they only roused themselves to action upon being individually attacked. As another illustration of their lack of intellectual acuteness, I may mention that on the following morning we found several seals that had "hauled up" during the night among the dead ones surrounded by skinned carcasses.

In the water they showed no particular curiosity in regard to a boat or its occupants, a curiosity usually so very marked among seals, nor did they disport themselves in play as does the harbor seal. That they are generally peaceful is borne out by their appearance, very few scars of combat being observed, and some of these not unlikely inflicted by the myriads of sharks surrounding the islands. The contents of the stomachs of several were examined, but nothing except fluids were found, which gave no clue to their food. It undoubtedly consists largely of fish: one in captivity was fed on this food and appeared to thrive well. They are greatly infested with intestinal parasites several inches in length, that shortly after death swarm out of anus and vagina, dying as they reach the air. On land or in shallow water the seal progresses by drawing forward the hind parts, thus throwing the line of the back into a strong curve, then pitching itself forward on to its breast to again repeat the same action. The distance covered is usually about a foot, the difference between the chord of the arc and the horizontal length between the fore and hind flippers; but when this movement is violent the seal throws itself forward with so much force as to somewhat overshoot this. The appearance of one moving is much like that of an "inch-worm,"—a continual bobbing up and down of the middle of the back. One was noticed that, when under considerable excitement, evidently forgot how to run, but lay on its belly trying to scull through the sand with its hind flippers as though it were in the water.

On the 29th of November last a small seal was captured alive near the city of Campeche; but as we were busy getting away we did not obtain it. On our return the purchaser tried to dispose of it to us for one thousand dollars! and on my departure for the north still held it at two hundred dollars. It was difficult to glean any exact data from the inhabitants; but I am inclined to believe that the seal is quite uncommon on the coast. The high price asked for the young one, and the fact that it was here placed on exhibition and afterwards taken to Progresso for the same purpose, would seem to confirm this.

About forty years ago, I am told, a vessel was wrecked at the Triangles, the captain and a negro, the only survivors, living upon seals and birds for six months before effecting their escape. Mr. W. B. Alexander, of Plymouth, Mass., writes me, under date of February 9, 1887, "In the spring of 1856 I was with Captain Lucas at the Triangles for a load of Mexican guano. I only saw two seals while there, which left the island in a hurry, so I can give you no information from personal knowledge, although there must have been great numbers there, by the skeletons, poor hides, etc.; and some one must have carried on an extensive business in that line, for we made a grand bonfire of perhaps a hundred barrels of the remains."

Mr. F. A. Lucas writes me from the United States National Museum, February 2, 1887, "In the spring of 1856 my mother was at the Triangles, where my father, A. H. Lucas, had gone in the bark 'Edwin,' of Charlestown, Mass., to seek guano. The young boobies were in downy plumage, and this is why I call it spring. My mother remembers seeing seals on the rocks, and seal-bones were found on the island."

Mr. Gosse, "A Naturalist's Sojourn in Jamaica," says that this seal has crimson irides, that "the hair prevails everywhere except on the palms of the flippers, which are bare," and "the color of the body is an intense uniform black." The first two points are evidently mistakes. The third is characteristic only of very young specimens of Monachus. Perhaps it is Gray's *Cystophora antillarum*, a species concerning which I am very sceptical.

But color seems to be a great stumbling-block with many. Mr. H. W. Elliott, usually so exact in description, in *Science*, vol. iv. pp. 752, 753, describes the specimen now in the National Museum as "intense ebony-black," while Messrs. True and Lucas, in Smithsonian Report, 1884, Part II., p. 332, in describing the same specimen, say, "In our specimen the hairs of the back and hind flippers appear light at the tips, as if faded by age; but are dark sepia color or nearly black, except at the extremity."

It is surprising how this seal has lived for so long a time in such a frequently traversed part of the ocean as the Gulf of Mexico, surrounded as it is on all sides by populous cities, and yet should for nearly four hundred years remain all but unknown. Naturalists are usually particularly acute in searching out rare specimens; but by some peculiar combination of circumstances this seal has eluded the many scientific expeditions heretofore made to these waters.

For a full description of this seal the reader is referred to the previously-mentioned bulletin of Professor Allen, to whose much more able hands this work peculiarly belongs, and to whom I have willingly resigned it.

EDITORS' TABLE.

EDITORS: E. D. COPE AND J. S. KINGSLEY.

WE most heartily approve the growing practice of using English names for the various fungi, especially those which are of interest to us economically. Such fungi must be discussed over and over again in the journals of the day; they must be talked about by farmers, gardeners, stock-growers; they must be described by teachers and popular lecturers. A few of these species which are bound to have this publicity have scientific names which can be readily adopted into English speech; but in the great majority of cases the scientific names cannot be used by the people, nor can they be in any way "anglicized" or modified into such forms as will bring them into every-day use. Thus, while the genus Bacterium has given us the accepted term Bacteria for a group of organisms, the allied genus Saccharomyces has not been nor ever will be anglicized. Possibly Mucor may come into common use, but Entomophthora never will; nor will Phytophthora, Podosphæra, Sphærotheca, Microsphæra, Erysiphe, etc. It is not too much to hope that gardeners will habitually speak of the "Ramularia" of the strawberry, the "Septoria" of the plum leaf, the "Peronospora" of the grape-vine, but is any one rash enough to expect to hear our vineyardists speaking familiarly of the Physalospora ("Black Rot"), the Cercospora ("Grape-leaf Blight"), or the Phyllosticta ("Grape-leaf Spot")?